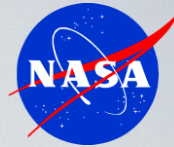


A large, gold-colored hexagonal mirror segment of the James Webb Space Telescope is being lowered by a yellow crane into a cleanroom. The mirror is suspended by a complex rig of cables and pulleys. Below it, a large, curved, silver-colored structure, likely the telescope's primary mirror or a support structure, is visible. The cleanroom environment is bright and sterile, with white walls and a high ceiling. A yellow crane with a "20 TON CAP" label is visible in the background. Two workers on scissor lifts are positioned around the mirror segment. The overall scene depicts the assembly and testing of the JWST components.

# JWST Update

Eric P. Smith  
JWST Program Office  
30-June-2021



# RECENT EVENTS

## ⑩ Observatory

- All observatory post-environmental testing deployments are complete
- Final stow and preparations underway prior to shipping

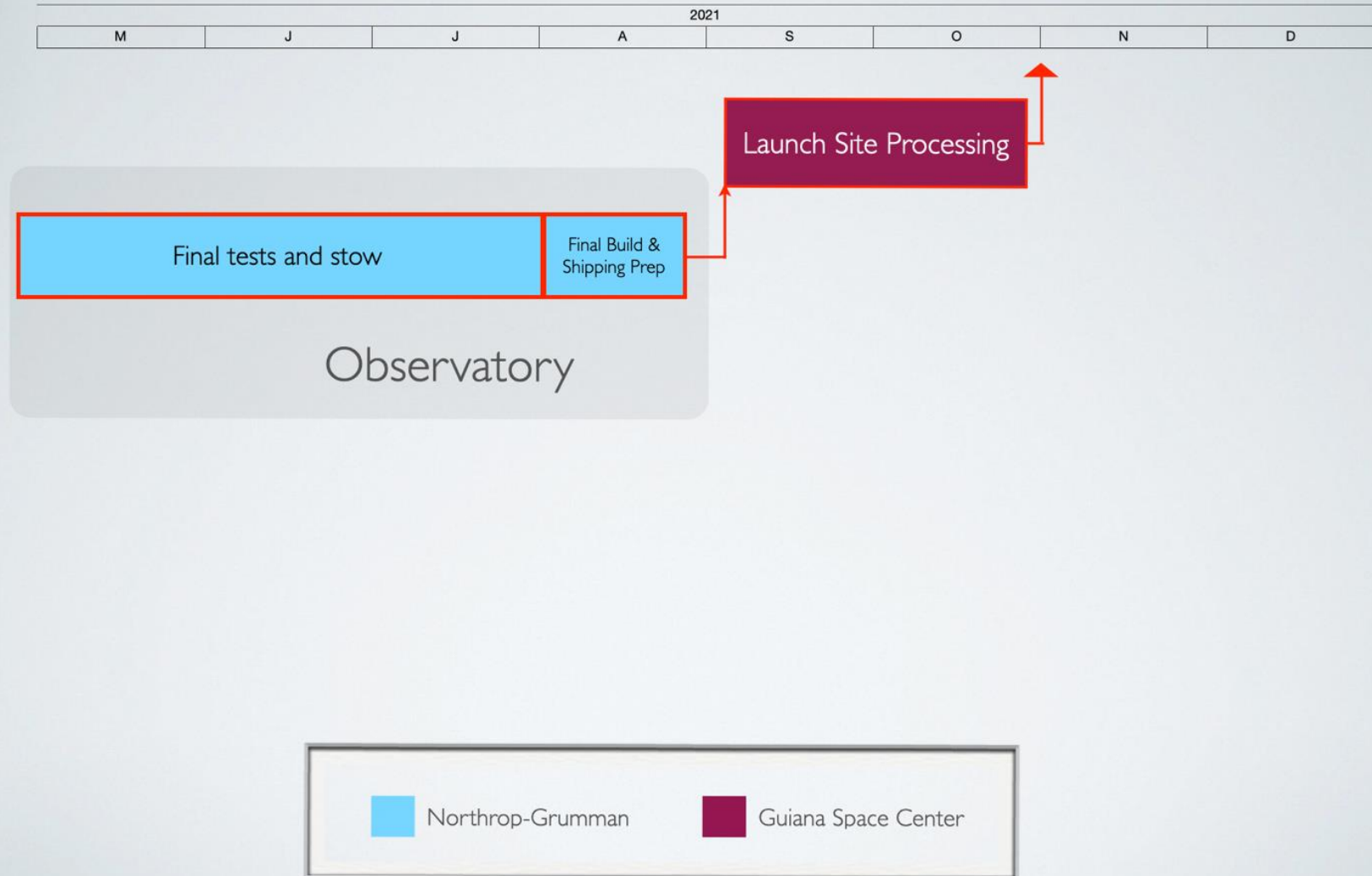
## • Science and Operations

- Ground segment testing and operations rehearsals continuing
  - Completed Launch Readiness Exercises #3 and #4 and commissioning rehearsals
  - LRE #4 last week saw more mission operations center (MOC) room staffing
- Cycle 1 program defined

## ⑩ Programmatic

- On track to complete observatory for August ship date and a 10/31/21 LRD
- Working with ESA & Arianespace to be the 3<sup>rd</sup> Ariane 5 launch this year after they return to flight in late July.
- NASA Senior management is fully aware of concerns raised by members of our community regarding the mission's name (and the petition about the topic) and is working with historians on the matter.

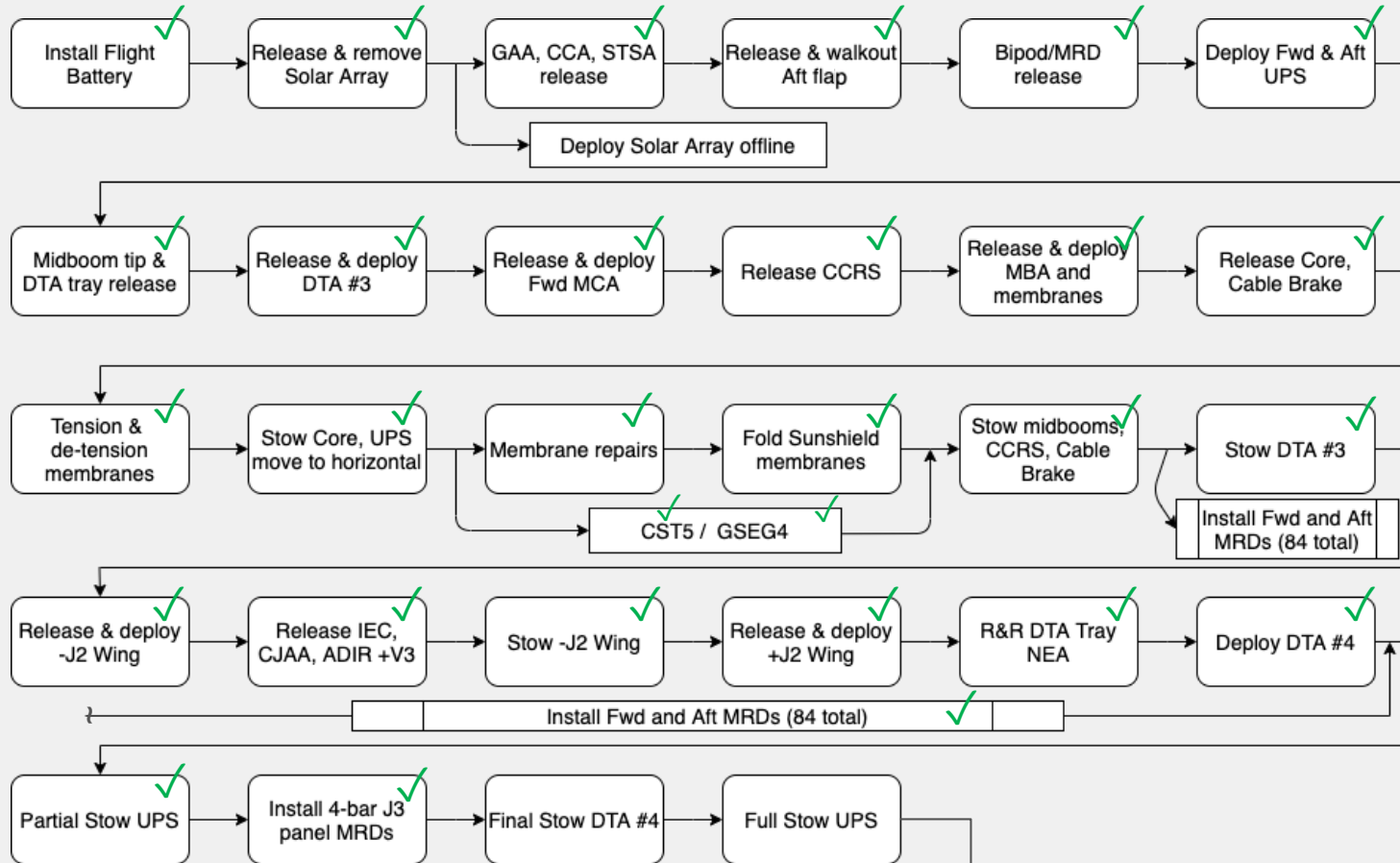
# SIMPLIFIED SCHEDULE



# REMAINING I&T STEPS



Observatory Deployments

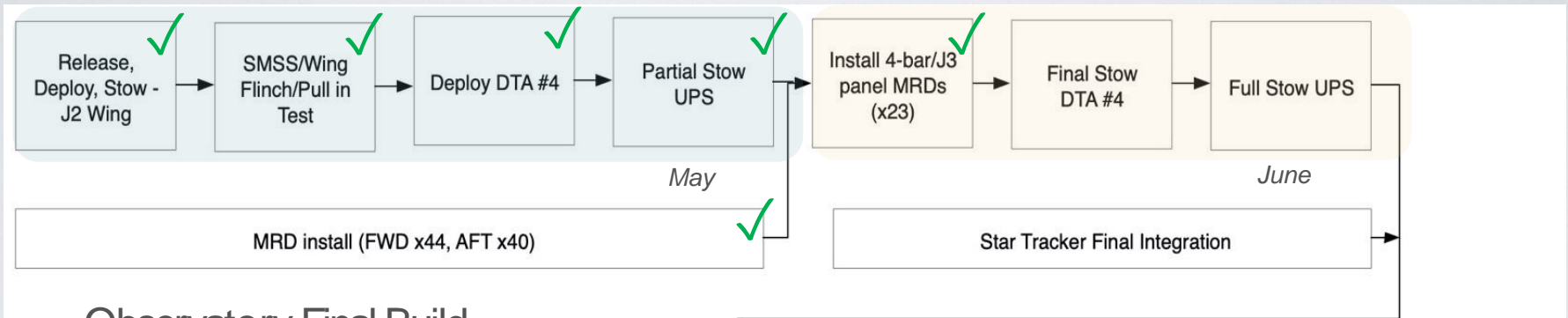


OBS Final Build

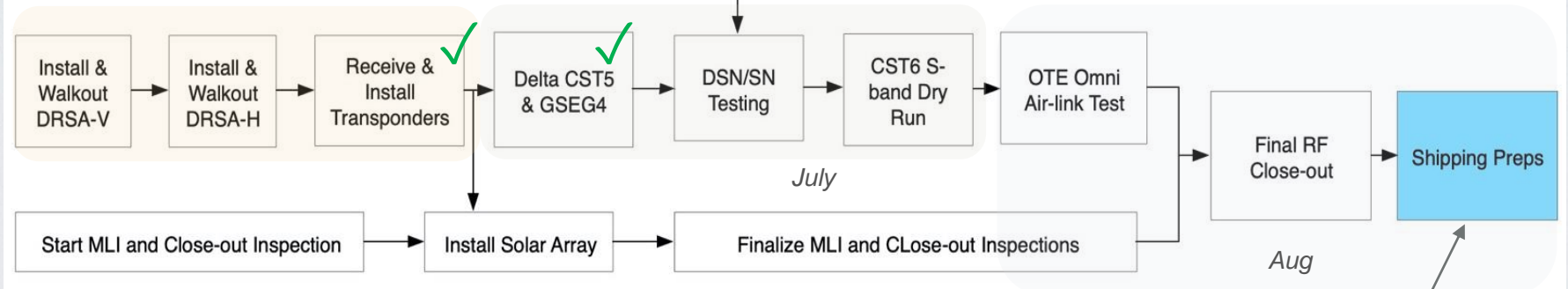


# REMAINING I&T STEPS

## Observatory Deployments

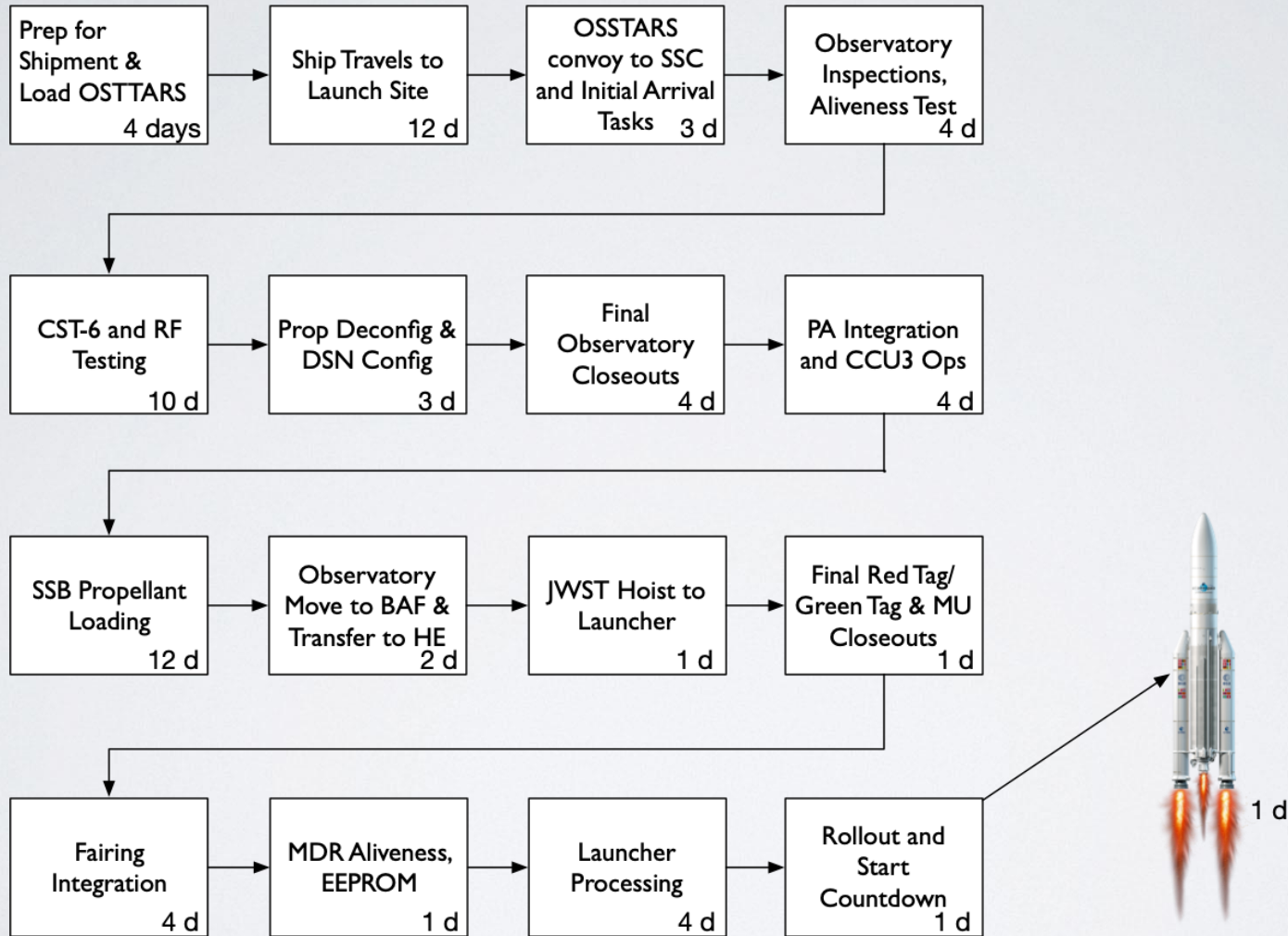


## Observatory Final Build



Blue box indicates first time activity

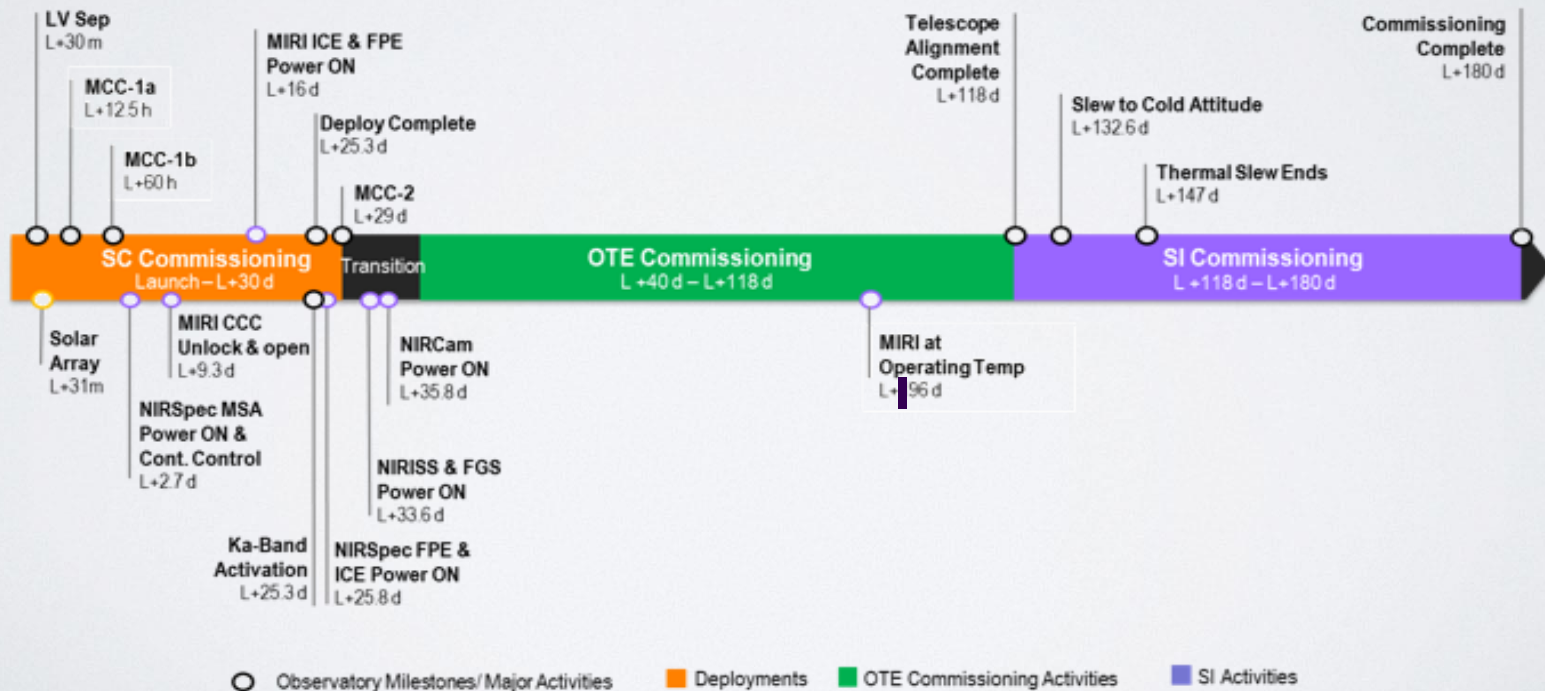
# KOUROU ACTIVITIES



# COMMISSIONING AT A GLANCE

Commissioning begins at launch and is ~ 180 days long marked by the following key events:

1. Launch and Ascent – power positive, safe attitude, and communications established
2. Mid Course Correction – MCC1 (a and b) corrects launcher dispersions for proper L2 trajectory
3. Deployments
4. Cool-Down/Cryo-Cooler Activation
5. Mirror segment deploy and wave-front control
6. Science Instrument calibrations and checkout





# SPACECRAFT COMMISSIONING

- Spacecraft Systems

Any spacecraft related commissioning activities not captured under another phase fall under the spacecraft systems phase

50 total activities, spanning the course of the 180-day commissioning

Most activities are within the first 30 days of commissioning

- Launch & Ascent (L&A)

Autonomously commanded phase from launch through solar array deployment, sun capture, and comm establishment

- Mid-Course Correction (MCC)

Activities related to achieving final mission orbit

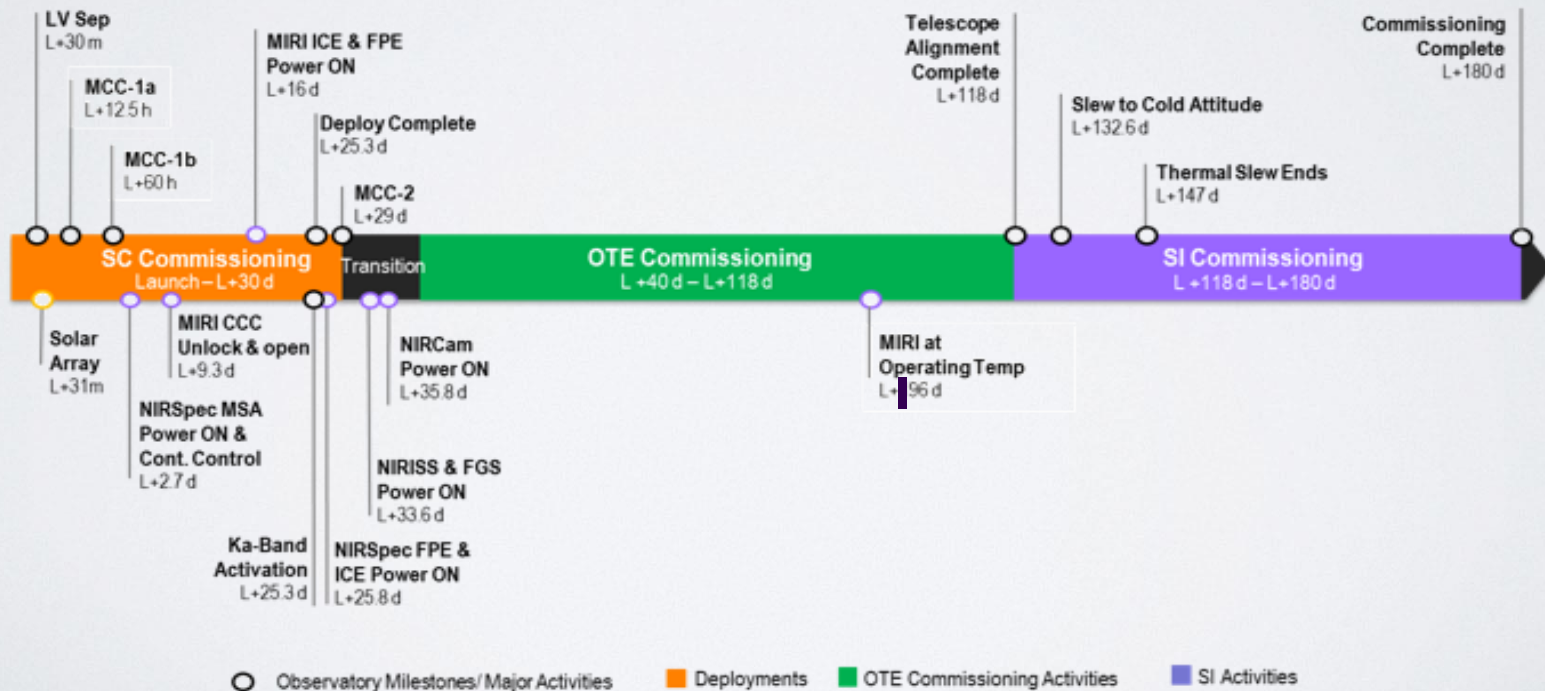
- Deployments

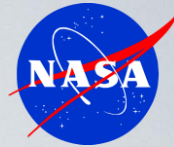
All deployment activities up to mirror segment deployment

# COMMISSIONING AT A GLANCE

Commissioning begins at launch and is ~ 180 days long marked by the following key events:

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# COOLDOWN

- Objective of Cooldown:

To get to operational temperatures safely while preventing and/or mitigating contamination of sensitive surfaces on the JWST Observatory

- Begins after LV fairing is jettisoned

Cooling rate increases for most of the hardware once Sunshield has been successfully deployed

- Ends when all the following have been achieved

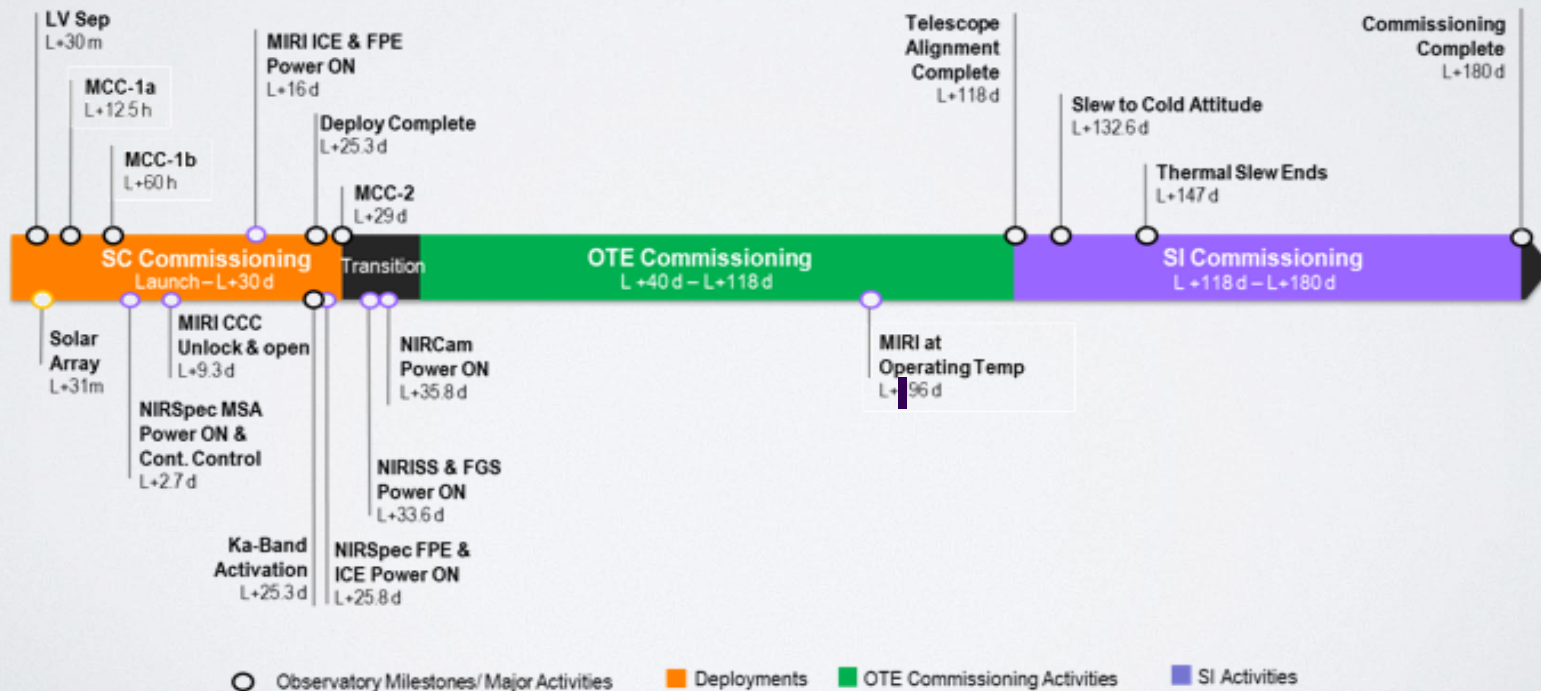
Telescope optics and Science Instruments (SIs) have stabilized at cryogenic operational temps

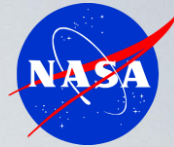
MIRI opens Contamination Control Cover and ready for on-sky observations (~L+98 days)

# COMMISSIONING AT A GLANCE

Commissioning begins at launch and is ~ 180 days long marked by the following key events:

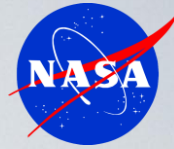
1. Launch and Ascent – power positive, safe attitude, and communications established
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# SI COMMISSIONING

- GOAL: Bring the science instrument modes to readiness for “turning them loose on the universe”
- Characterize the performance and operational aspects of each mode well enough to know how to take “science-quality data” with it
- Important earlier functional checkouts and internal calibrations are interleaved with telescope commissioning; the heart of SI commissioning corresponds to the final two months of commissioning
- This is the time period for “on-sky” commissioning activities with an aligned/phased telescope (*i.e.*, after telescope commissioning)



# CYCLE 1 GO/AR RESULTS

Slides courtesy STScI



# JWST CYCLE 1 OVERVIEW

- More than 10,000 hours of observing time allocated for science during Cycle 1
- Includes
  - Guaranteed Time Observations (GTO, ~3,500 hours)
  - Director's Discretionary Early Release Science (DD-ERS, ~500 hours)
  - General Observer Programs (GO, ~6,000 hours)
- Almost 400 individual programs
- More than 2,500 worldwide investigators
- A new call for proposals anticipated every year during the science mission
- Nearly every area of astrophysics and planetary astronomy is already represented during the first year of observations

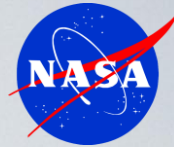
*All approved programs can be viewed at <https://jwst.stsci.edu>*



# EXECUTIVE SUMMARY

- Submission statistics
  - 1172 proposals, 1084 GO for ~25,278 hours
  - 1169 proposals compliant with dual anonymous protocols
  - 374 with ESA Pls, 44 with Canadian Pls
- Review process
  - Small & Medium proposals are reviewed by topical panels
  - Large and Treasury proposals are reviewed by the Executive Committee
    - Panel chairs, At-Large members, TAC chairs
- Acceptance Rate
  - GO 1 in 4 for proposals (286) and Hours (5981)
    - Small (<25 hrs): 52% of total time allocated – 1 in 4.1 by proposals
    - Medium (25-75 hrs): 32% of time allocated – 1 in 3.8 by proposals
    - Large (>75 hrs): 16% of time allocated - 1 in 4.75 by proposals
  - Archival Research 20/75 = 1 in 3.75 acceptance by proposals
    - Regular 15 recommended
    - Theory 5 recommended
- Instruments: MIRI 28.1%, NIRCам 24.4%, NIRISS 6.7%, NIRSPEC 40.8%

# EXECUTIVE SUMMARY



- **CSA Acceptance**

- Pls 4% for proposals and hours of total observing program

- CSA Submitted vs Accepted is

- 23% for proposals 10 accepted from 44 submitted

- 31% for hours 249 allocated from 813 requested

- Col are 2% of the total Col

- **ESA Acceptance**

- Pls for proposals 33.5% and 30% for hours of total observing program

- ESA Submitted vs Accepted is

- 24% for proposals 89 out of 374

- 22% for hours 1786 out of 8222

- Col are 36% of the total Col

- **Student-led proposals**

- 25 accepted proposals from 122 submitted

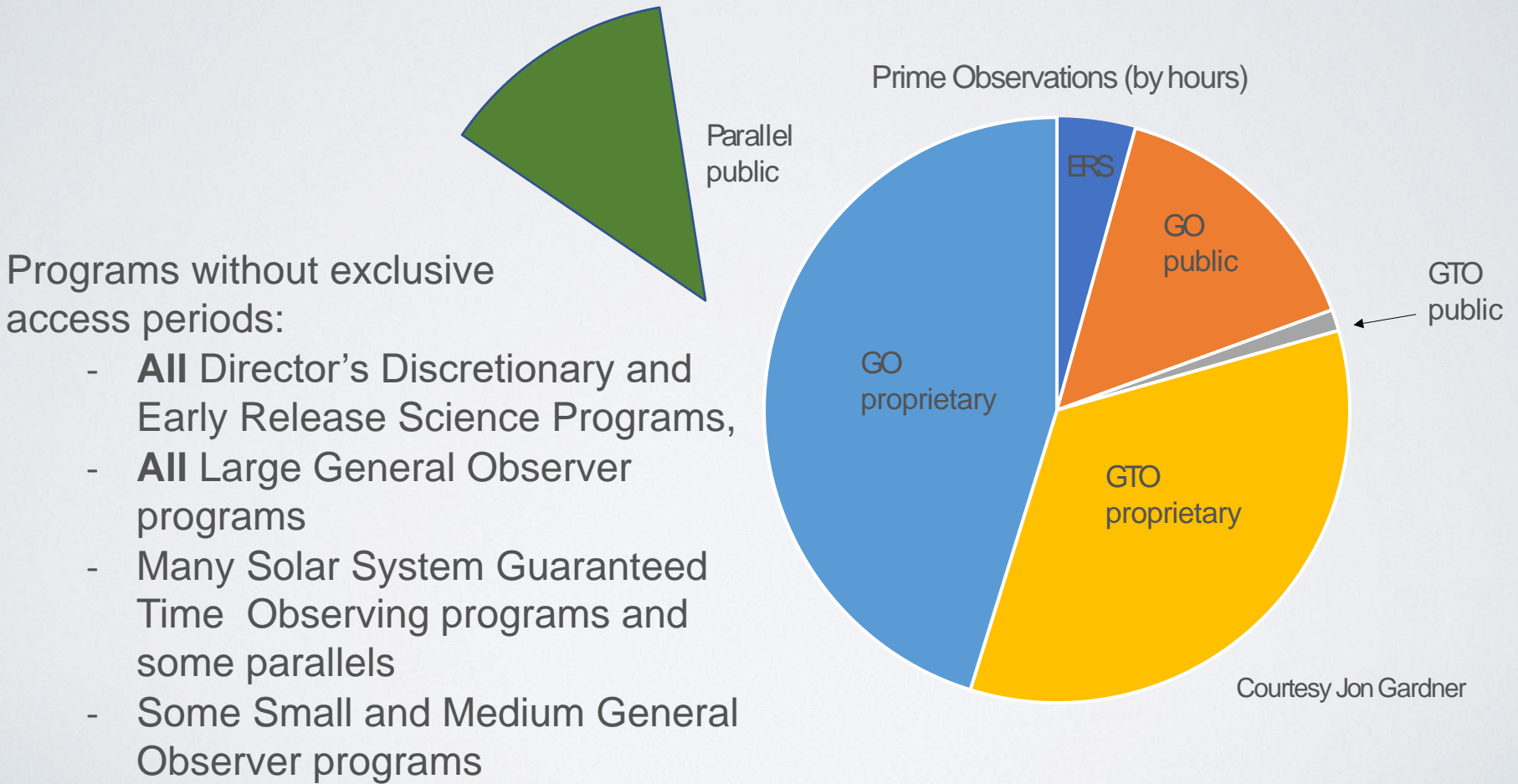
- **Calibration & mission support**

- 4 calibration proposals

- 4 mission support proposals



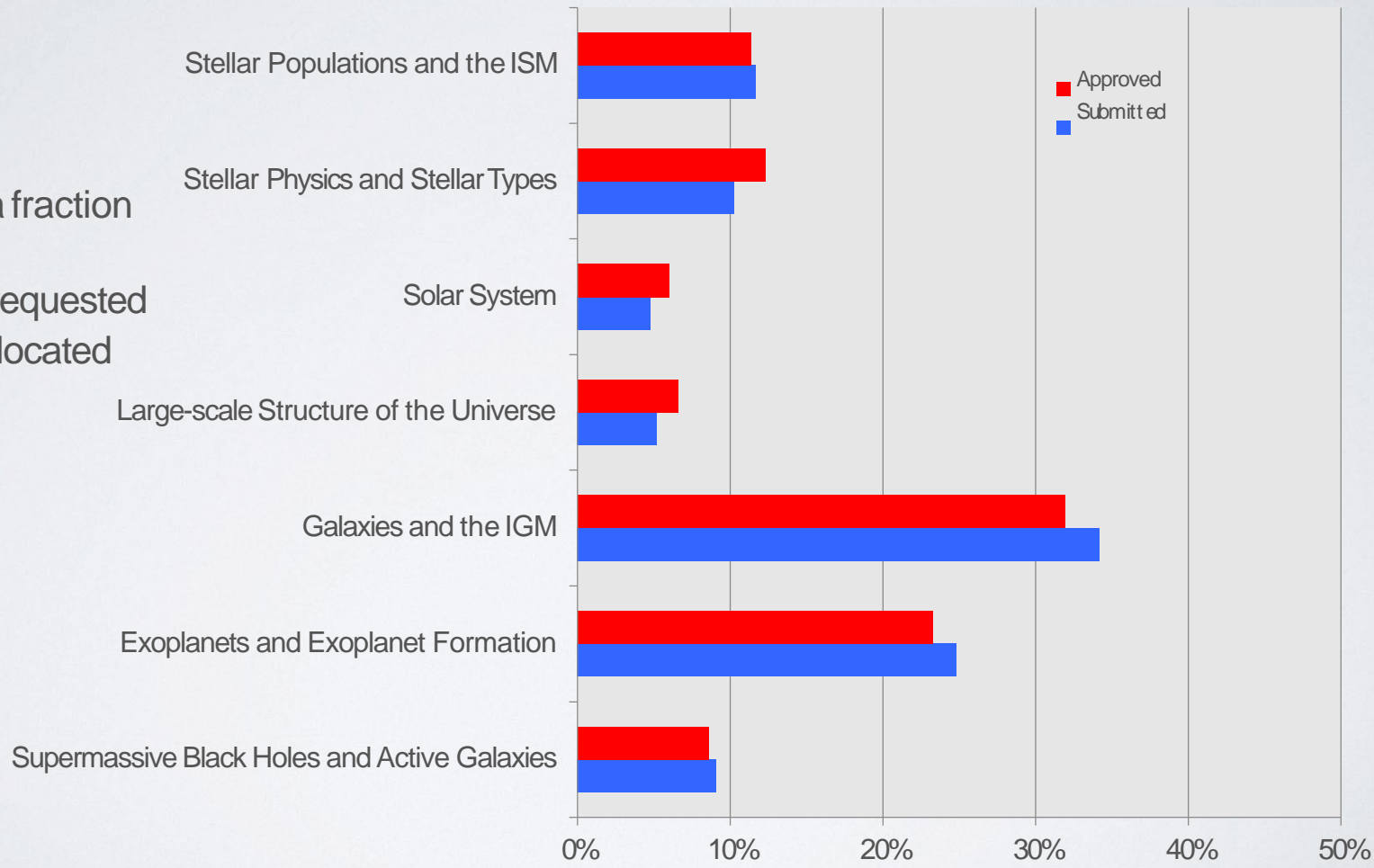
# >2000 HOURS WITH NO EXCLUSIVE ACCESS PERIOD



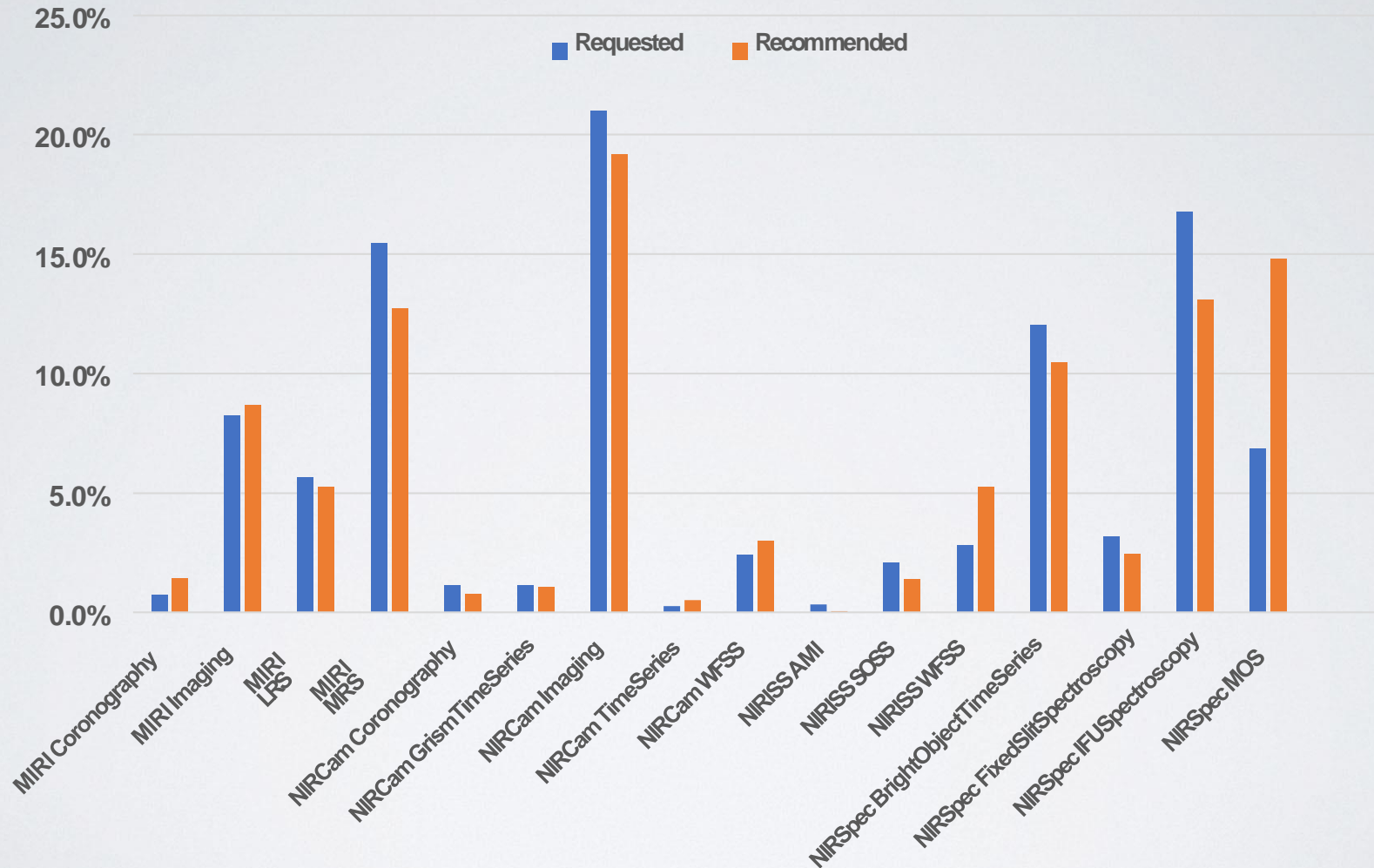


# SCIENCE CATEGORY DISTRIBUTION FOR HOURS

Expressed as a fraction  
of the whole  
25,278 hours requested  
5,981 hours allocated



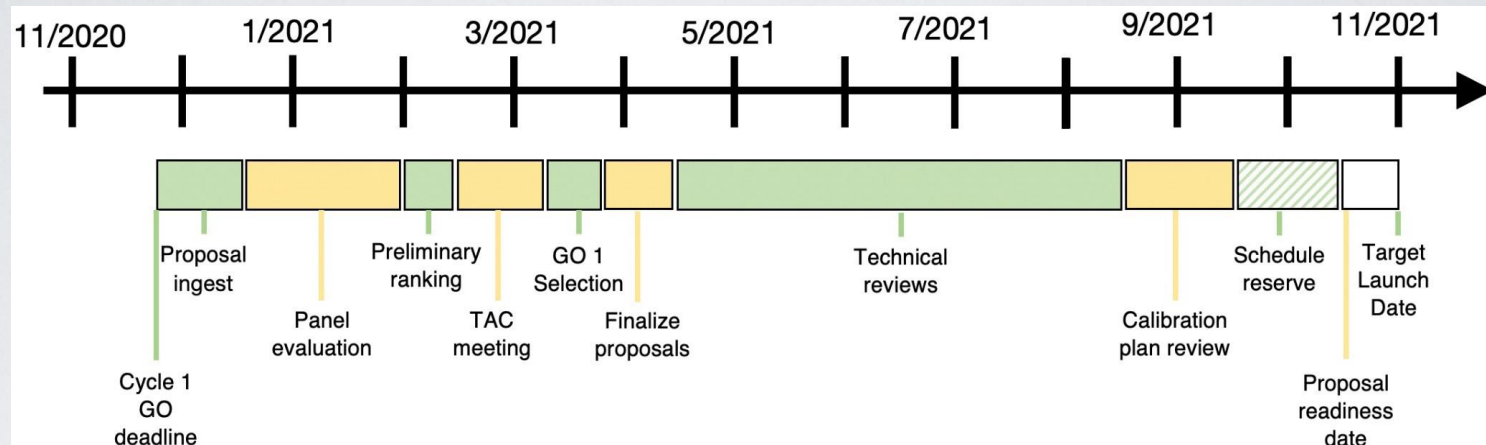
# INSTRUMENT MODES



Imaging 30% vs 70% Spectroscopy



# TECHNICAL & SCHEDULING REVIEWS



All proposals are subject to technical and scheduling reviews by STScI staff. Key scheduling issues:

High data volume – may preclude parallel observations in some instances

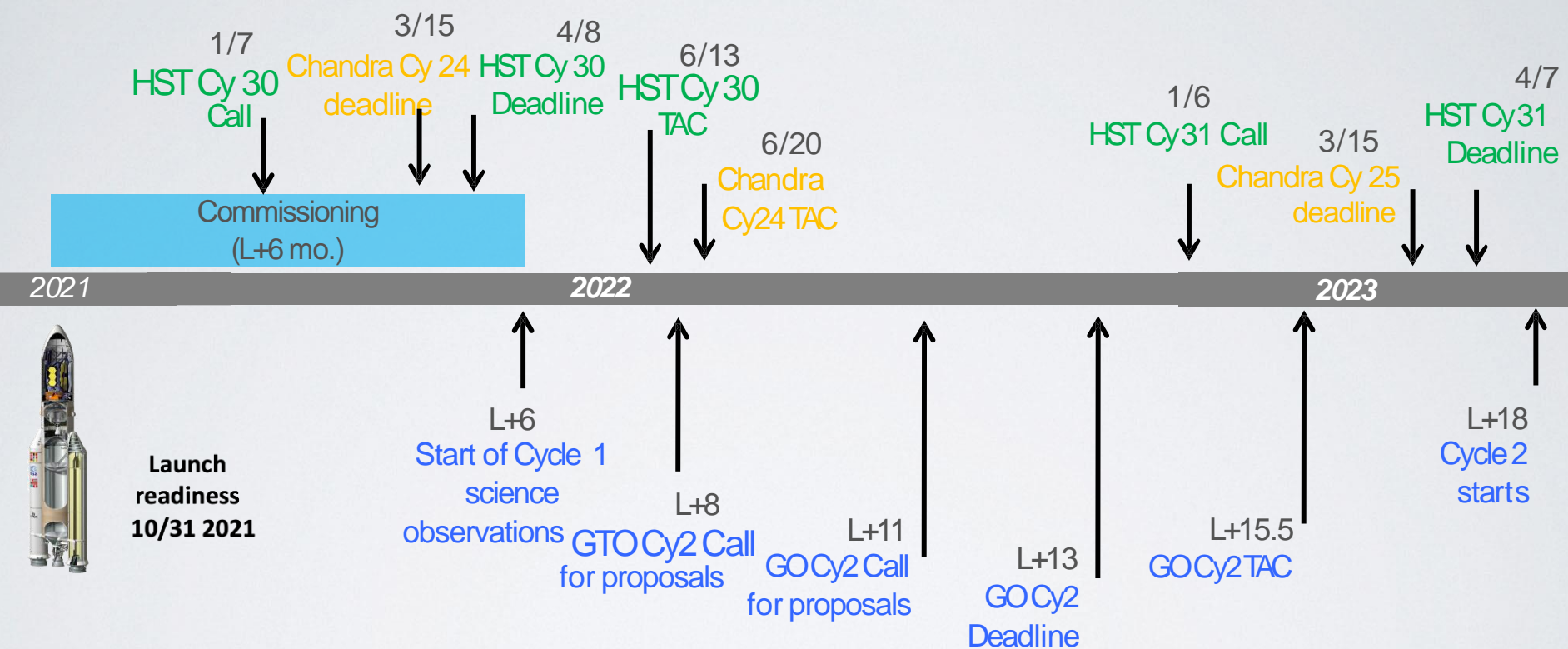
Uninterrupted observations – only allowable when scientifically required

Some programs may require adjustments that lead to longer charged times

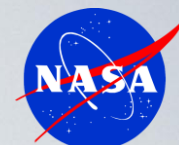
We will be flexible in allowing some such adjustments in Cycle 1



# JWST SCIENCE TIMELINE



HST & Chandra dates are estimates



# Fiscal Year 2021 JWST HQ Milestones

Month	Milestone	Comment
Oct-20	1 Complete Observatory Environmental Testing	Completed 10/2/20
Nov-20		
Dec-20	2 Complete Post Environmental Testing Spacecraft Bus Deployments	<u>Completed 11/12/20</u>
Jan-21	3 Complete Post Environmental Testing Sunshield Deployments	<u>Completed 12/16/20</u>
Feb-21	4 Complete Comprehensive System Test #5	Completed 2/13/21
Mar-21	5 Complete Cycle 1 General Observer Proposal Reviews	<u>Completed 3/30/21</u>
	6 Sunshield Fold Complete	Completed 4/6/21
	7 Launch Readiness Exercise #2	Completed 3/8/21
Apr-21		
May-21	8 Final Deployable Tower deployment	Completed 6/8/21
Jun-21		
Jul-21	9 Final Observatory Stow Complete	
	10 Observatory Pre-Ship Review	
	11 Launch Readiness Exercise #4	<u>Completed 6/22/21</u>
Aug-21	12 Operational Readiness Review	
	13 Ship Observatory to Launch Site	
Sep-21		

Blue font(underline) denotes milestones accomplished ahead of schedule, orange font denotes milestones accomplished late.



BACKUP



# MAILESTONE PERFORMANCE

- Since the September 2011 replan JWST reports high-level milestones monthly to numerous stakeholders

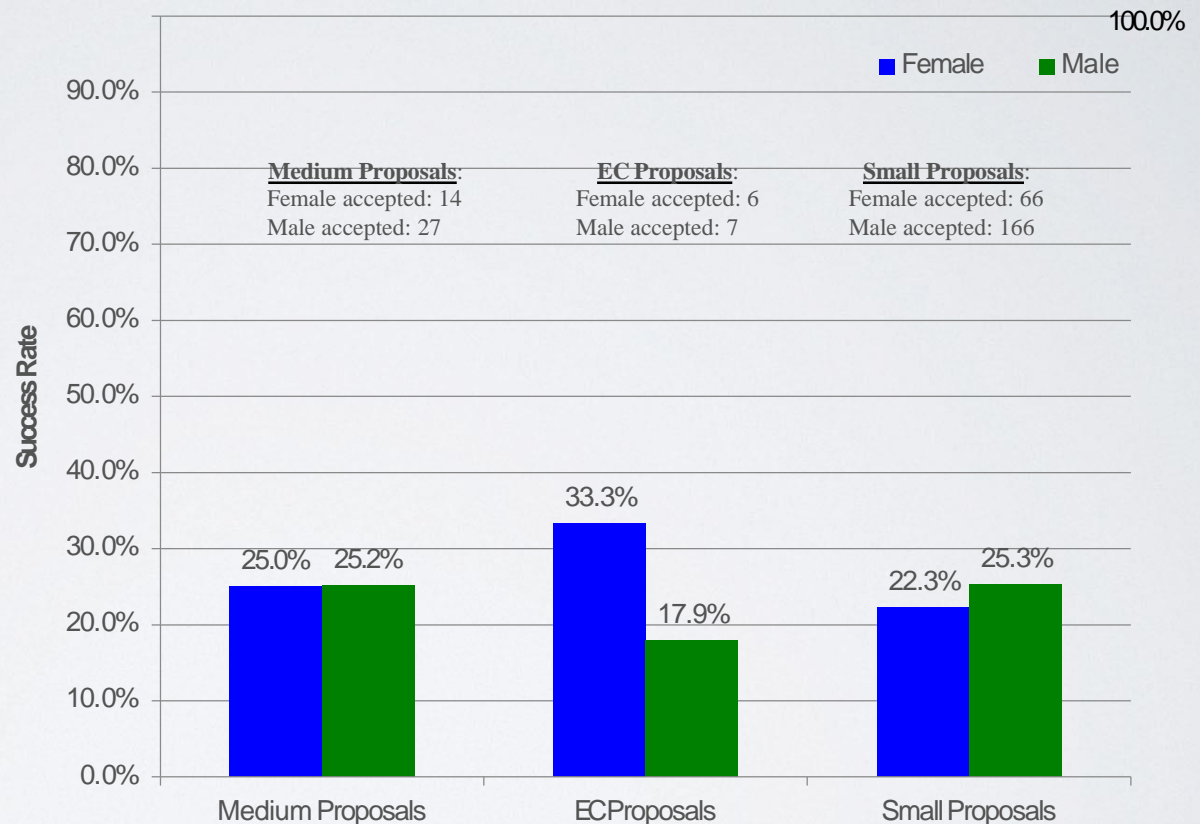
	<b>Total Milestones</b>	<b>Total Milestones Completed</b>	<b>Number Completed Early</b>	<b>Number Completed Late</b>	<b>Deferred to Next Year</b>	<b>Deferred more than one quarter</b>
FY2011	21	21	6	3	0	0
FY2012	37	34	16	2	3	3
FY2013	41	38	20	5	3	2
FY2014❖	36	23	10	8	11	10
FY2015	48	44	22	12	4	3
FY2016	45	39	25	7	6	2
FY2017	38	32	12	13	8	5
FY2018	31	18	7	2	13	13
FY2019	25	22	10	10	3	2
FY2020	17*	12	5	0	0	0
FY2021	13	9	3	2	0	0

❖ Milestone accounting in FY2014 was complicated by the government shutdown and multicomponent milestones. \*Milestone reporting stopped during COVID-19 impacted months

# DUAL ANONYMOUS REVIEW



- Proposal reviews are conducted with the identities of the proposal teams removed from the proposals.
- Each panel has a Leveler who helps to keep the panel discussion focused on the selection criteria.
- Once the proposals are ranked, then the panel may examine the Team Expertise.





# PI Seniority

